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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/597,293

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Wolfgang Kraemer

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FITCH EVEN TABIN & FLANNERY
120 SOUTH LASALLE STREET
SUITE 1600
CHICAGO, IL 60603-3406

EXAMINER

FORD, JOHN K

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

05/11/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/597,293	Applicant(s) KRAEMER ET AL.	
	Examiner John K. Ford	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-15 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 8-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/19/06, 9/29/08, 1/30/09</u> . | 6) <input type="checkbox"/> Other: ____. |

The current application (SN 10/597,293) is essentially identical to SN 10/780,119 that has undergone extensive prosecution before the current examiner. SN 10/780,119 is now abandoned. Curiously, applicant makes no mention of the existence of this highly material copending application (SN 10/780,119) in any of the application papers in the current application (or vice versa).

In the prosecution of 10/780,119, counsel was advised that the “assignee has multiple related applications pending related to this technology. Two of them have been assigned to the undersigned. Those serial numbers are SN 10/658746 and SN 10/944401. If there are other related applications, pursuant to the authority granted in MPEP 2001.06(b), this examiner is requiring their disclosure in response to this office action.”

That requirement is repeated here.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 12, lines 1-2, there is no antecedent basis for “the heating element”.

In claim 13, it is unclear how air can pass through a latent cold storage material. Doesn't the air have to pass around the latent cold storage material which is a solid when it is in its "frozen" state? In other words, if the latent heat storage material is water, how can the air pass through the ice that is formed when the water is frozen?

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8, 9 and 10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rafalovich (6,059,016) or Khelifa et al (6,260,376).

In Figure 32, Rafalovich discloses an electrically driven compressor 488 (col. 32, line 42), condenser 490, expansion device 492, a thermal storage system 512 having a latent heat holdover 391 (phase change material) and a coolant circuit formed by heat

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exchanger 166, air heat exchangers 514 and 516, closed heat transfer loop 156 and a pump 150. While element 492 is referred to as an expansion device and not specifically an expansion valve, the terms are often used synonymously. To that extent Rafalovich is deemed to be a proper reference under 35 USC 102(b). Nevertheless, if necessary, Rafalovich discloses an expansion valve 136 in the embodiment of Figure 5 and it would have been obvious to have used an expansion valve in the Figure 32 embodiment to perform the expansion of the refrigerant. Many such expansion valves offer the advantage of improved control over the refrigerant expansion.

The detailed description of Figures 2 and 3 of Khelifa '376 appears to show all of the claimed subject matter of claims 8, 9 and 10 and the reference is incorporated here by reference by way of explanation. Given that it shares an inventor with the inventive entity of the current application, no further explanation by this examiner is deemed necessary.

Claims 8-10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rafalovich '016 or Khelifa et al as applied to claims 8-10 above, and further in view of Kang (WO 01/40005).

In column 35, lines 13-16, Rafalovich discloses that the embodiment of Figure 32 (among others) can be used in an electric vehicle or a hybrid electric vehicle and this also appears to be true of Khelifa. Neither Rafalovich nor Khelifa disclose the

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conventional details of such vehicles such as an engine driven generator. On page 8, lines 9-17, Kang discloses that electrically powered air conditioning systems using an electrically powered compressor (such as disclosed by Rafalovich and Khelifa) can be powered by an engine driven generator 17 that is directly connected to and driven by a crankshaft of an engine (not shown) of the vehicle.

To have driven the electrically driven compressor 488 of Rafalovich or the electrically driven compressor 19 of Khelifa, as disclosed in claim 7 of Khelifa, by an engine driven generator 17 that is directly connected to and driven by a crankshaft of an engine (not shown) of the vehicle, in a hybrid electric vehicle installation (as contemplated in column 35, lines 13-16 of Rafalovich) would have been obvious to one of ordinary skill in the art since this appears to be conventional and is clearly taught by Kang. Such a modification would advantageously permit optimal use of battery and engine resources in a hybrid vehicle.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rafalovich '016 or Khelifa et al, with or without Kang, as applied to claims 8-10 above, and further in view of Horn et al (US 2003/0192952).

To have added a fuel fired heater (as taught by Horn at 26) downstream of the heat exchanger 514 and/or 516 of Rafalovich would have been obvious to one of

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ordinary skill in that art to advantageously allow for inexpensive heating of the compartment when the vehicle was parked in the winter months.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rafalovich '016 as applied to claims 8 above, and further in view of Tanaka (USP 5,644,929) or Rafalovich et al (USP 5,871,041).

To have substituted a phase change storage heat exchanger having air passed through it and having a plurality of heat storage elements as taught by Tanaka (Figure 5) or Rafalovich '041 (Figures 3-4) or Rafalovich '016 (Figure 6 and 7) for that shown in Rafalovich '016, Figure 31 at 484, would have been obvious to one of ordinary skill in the art.

Note that Figure 31 of Rafalovich '016 which is identical to Figure 32 of Rafalovich '016 except that air is directly passed over the heat storage material by fan 400. To have passed the air through plural containers having heat storage material in them as taught by Tanaka (Figure 5) or Rafalovich '041 (Figures 3-4) or Rafalovich '016 (Figure 6 and 7) would have been obvious to one of ordinary skill in the art to advantageously increase the surface area for heat transfer with the air.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rafalovich '016 or Khelifa, with or without Kang, as applied to claim 8 above, and further in view of Kanada (5,957,193) or Carr (5,277,038).

While no details of the arrangement of the phase change materials in Rafalovich (6,059,016) in Figure 31 or Figure 32 or Khelifa et al (6,260,376) is shown, it is known from either one of Kanada (5,957,193) or Carr (5,277,038) to have used a plurality of containers to contain the heat storage material. See the plurality of containers shown in Figures 9-20D of Kanada and see Figure 1A of Carr, containers 83, 85 and 87. To have provided the system of Rafalovich (6,059,016) or Khelifa et al (6,260,376) with multiple containers of phase change material as taught by either of Kanada (5,957,193) or Carr (5,277,038) to advantageously permit the use of salt hydrates and other phase change materials and assure improved distribution of heat without necessarily resorting to agitation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Ford whose telephone number is 571-272-4911. The examiner can normally be reached on Mon.-Fri. 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John K. Ford/
Primary Examiner, Art Unit 3744

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